CLAIMS

WE CLAIM:

1 – Reactor for the production of carbon black characterized in that said reactor comprises:

a feeding gun for feeding hydrocarbon feedstock;

said reactor having three inlets for combustion gases and,

three inlets for air.

2 - Reactor according to claim 1 characterized in that the position of the feedstock gun in relation to a centerline of tangential entries which controls a vortex strength is varied to control the vortex and to obtain carbon black of different properties .

3 – Reactor according to claim 1 characterized in that injection of combustion gases and air axially and tangentially is made separately.

4 – Reactor according to claim 3 characterized in that combustion gases are injected axially and tangentially through three separate inlets.

5 - Reactor according to claim 4 characterized in that combustion gases are injected axially through one inlet and tangentially through two inlets.

6 - Reactor according to claim 3 characterized in that air is injected axially and tangentially through three separate inlets.

7 - Reactor according to claim 6 characterized in that air is injected axially through one inlet and tangentially through two inlets.

8 - Reactor according to claim 3 wherein a vortex strength is controlled through controlling tangential flow of each separate inlet.

9 – Reactor for the production of carbon black according to claim 1 wherein a vortex is controlled by controlling velocities and quantities of injected combustion gases and air at each inlet separately.

10 - Reactor for the production of carbon black according to claim 1 wherein potassium required to control structure is substantially reduced due to the separate control of injected reactants.

11 - Process for the production of carbon black by pyrolytical decomposition of hydrocarbon comprising the following steps:

introducing the hydrocarbon feedstock along the center of the reactor;

introducing combustion gases axially and tangentially through separate inlets;

introducing air axially and tangentially through separate inlets; and,

by separate control of quantities and velocity of combustion gases and air introduced through each inlet, changing the quality of the produced carbon black.

12 – Process according to claim 11 wherein combustion gases are injected axially through one inlet and tangentially through two inlets.

13 - Process according to claim 11 wherein air is injected axially through one inlet and tangentially through two inlets.

14 – Process according to claim 11 characterized in that the Axial velocity of injecting fuel or, air ranging from 30 met/sec to 200 met/sec and preferably from 50 to 180 met/ sec most preferably between 60 to 160 met/sec.

15 - Process according to claim 11 characterized in that tangential velocity ranging from 30 to 350 met/sec preferably between 50 to 300 met/sec and most preferably between 60 to 270 met/sec.

16 - The process according to claim 11 characterized in that ratio of axial velocity to tangential velocity fall within the range of 0.1 to 5.3 preferably between 0.5 to 2.5 .

17 - Process according to claim 11 characterized in that quantity of potassium required to control structure is substantially reduced.

18 – Carbon black produced in accordance with the process of claim 11 characterized in that it has a low surface area with minimum content of grit.

19 – Carbon black produced in accordance with the reactor of claim 1 characterized in that it has a low surface area with minimum content of grit.